RMRS Rocky Mountain Remediation Services, L.L.C.
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MEMORANDUM

DATE: July 10, 1997

TO: Distribution

FROM: Jerry Anderson, Radiological Controls, T893B, x6438

SUBJECT: JUNE 1997 RMRS RDR SUMMARY REPORT - JLA-014-97

The monthly RMRS Radiological Deficiency Report Tracking and Trending Summary Report is provided for your review and information. The intent of this summary is primarily statistical. However, brief narratives are included that relate to the RMRS and Site (SSOC) RDR programs.

Also included in this report, is a listing of RDRs which are currently open for resolution. These RDRs have been identified by Program Compliance and typically include the following:

- RDRs erroneously issued against RMRS vice the responsible organization,
- RDRs with inappropriate classification codes for the type of occurrence,
- RDRs with questionable 10 CFR 835 categorizations.

A total of nine RDRs/one Radiological Violation are currently in the SSOC RDR database for June. Program Compliance has identified six RDRs/one Radiological Violation for further resolution for the month of June. The RDRs to be resolved are indicated in Attachment 1 with an asterisk following the RDR number. It is anticipated these RDRs will be re-assigned to other contractors, resulting in an RMRS total of three RDRs/zero Radiological Violations for June. Applicable elements of the RMRS RDR Tracking and Trending Program will be updated to indicate changes made.

A summary of RDRs that have been modified and/or re-assigned since initially being issued in previous months is presented in Attachment 3. These changes typically result from RDRs previously being resolved with SSOC for proper and appropriate assignment and classifications.

A summary of open RMRS RDRs is also included in this report. A brief description, the number of days open, status of closure request and Responsible Manger for the RDR is presented.

This monthly report includes the following graphical representations and attachments:

GRAPH 1 - RMRS 12 MONTH TOTAL RADIOLOGICAL DEFICIENCY REPORTS
GRAPH 2 - RMRS 12 MONTH TOTAL RADIOLOGICAL VIOLATIONS
GRAPH 3 - RMRS 1997 RADIOLOGICAL DEFICIENCY REPORT DISTRIBUTION
GRAPH 4 - RMRS 1997 RADIOLOGICAL VIOLATION DISTRIBUTION
ATTACHMENT 1 - RMRS RADIOLOGICAL DEFICIENCY REPORT SUMMARY FOR JUNE 1997
ATTACHMENT 2 - RMRS RDRs FOR RESOLUTION
ATTACHMENT 3 - RMRS RDR EVALUATION FOR THIRD QUARTER FISCAL YEAR 1997

Your comments and questions are welcome. Please contact Jerry Anderson (x6438, Fax 4046) or Dean Stewart (x7214, Fax 4046).

RDR Summary Brief	May '97	June '97	Apr-Jun	Current Qtr	FY to Date
Radiological Deficiency Reports	6	9	17	1	78
Radiological Violations	2	1	3	0	25
Average # of Days to Close RDRs	pending	pending	pending	n/a	37.3

Open RDR Summary	RDR #	# Days Open	Closure Requested	Responsible Manager
Non-posted RA outside 569	97-177	**78**	Yes	S. Kranker
881 computer equip. moved	97-215	**51**	**No**	G. Rankin
RMA entry w/o TLD in 991	97-228	**43**	**No**	T. Gray
Expired RWII training	97-232.D	**40**	**No**	None Indicated
SOEs enter CA w/o Rad Safety	97-238	**35**	**No**	E. Roush
Out-of-cal instrument used	97-259	28	No	None Indicated
Incorrect CAM alarm set point	97-268	22	Yes	M.E. Brown
Personnel not following RWP	97-282	15	No	None Indicated
Inadequate respirator storage	97-299	14	Yes	G. Fischer
Cont. shoes found in locker	97-300	20	No	None Indicated
Respirators found in box	97-301	8	No	None Indicated
Glove failure/Cont. PPE	97-304	7	No	T. Bourgeois

Narrative

- RDRs are included in safety performance measures. Responsible Managers should keep this in mind when an RDR is issued with their name as the accountable Responsible Manager. Attachment 2, *RMRS RDRs FOR RESOLUTION*, indicates numerous RDRs that have been modified or reassigned since origination. Many of these changes have been the result of Program Compliance personnel reviewing RDRs and having to back them out of the SSOC RDR database. Responsible Managers must inform Jerry Anderson or Dean Stewart when an RDR is issued against their activities. This will allow Program Compliance personnel a chance to review the RDR and request changes as appropriate before getting into the SSOC RDR database. The number of RDRs that are being accepted by Responsible Managers without Program Compliance review, and without questioning the validity or ownership is unsatisfactory. ALL RDRs issued against RMRS must be faxed to Jerry Anderson or Dean Stewart at Fax 4046.
- RDRs are closed when the SSOC RDR Administrator closes them, not when closure paperwork is submitted to SSOC. Responsible Mangers need to follow up on RDR close out actions to ensure the RDR gets closed out. Submitting closure paperwork to the SSOC RDR Administrator is not a guarantee the RDR will be closed out. Responsible Managers must inform Jerry Anderson or Dean Stewart when closure paperwork is submitted to SSOC in order for Program Compliance personnel to assist expediting RDR closures and document difficulties encountered regarding RDR closures.

- Occasionally SSOC changes the assignment of RDRs after being issued. SSOC has indicated that they have no formalized notification process for these changes. Therefore, RMRS Program Compliance is currently manually reviewing the SSOC RDR database weekly in order to identify any changes affecting RMRS RDRs. These changes are presented in Attachment 2, *RMRS RDRs FOR RESOLUTION.*

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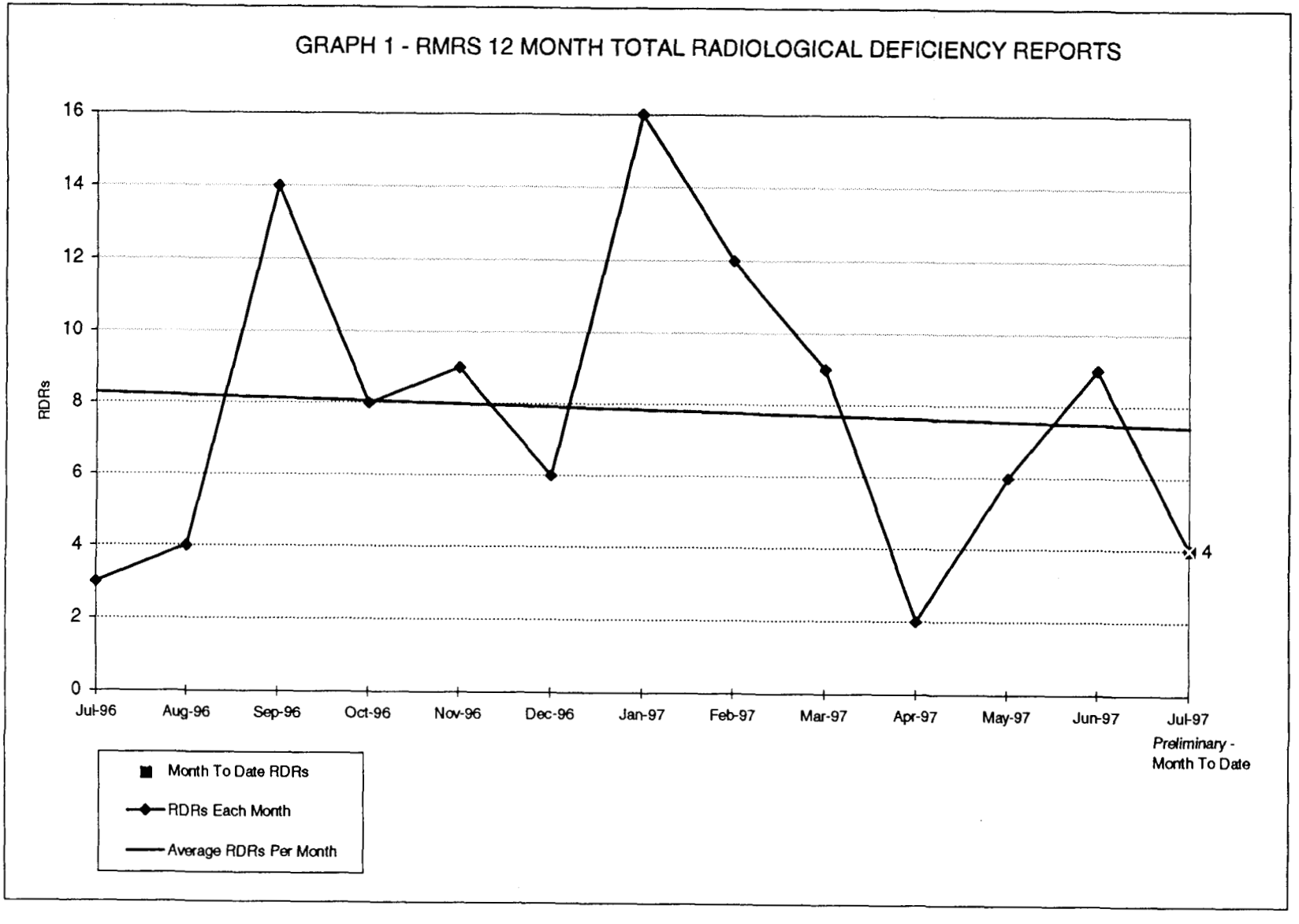
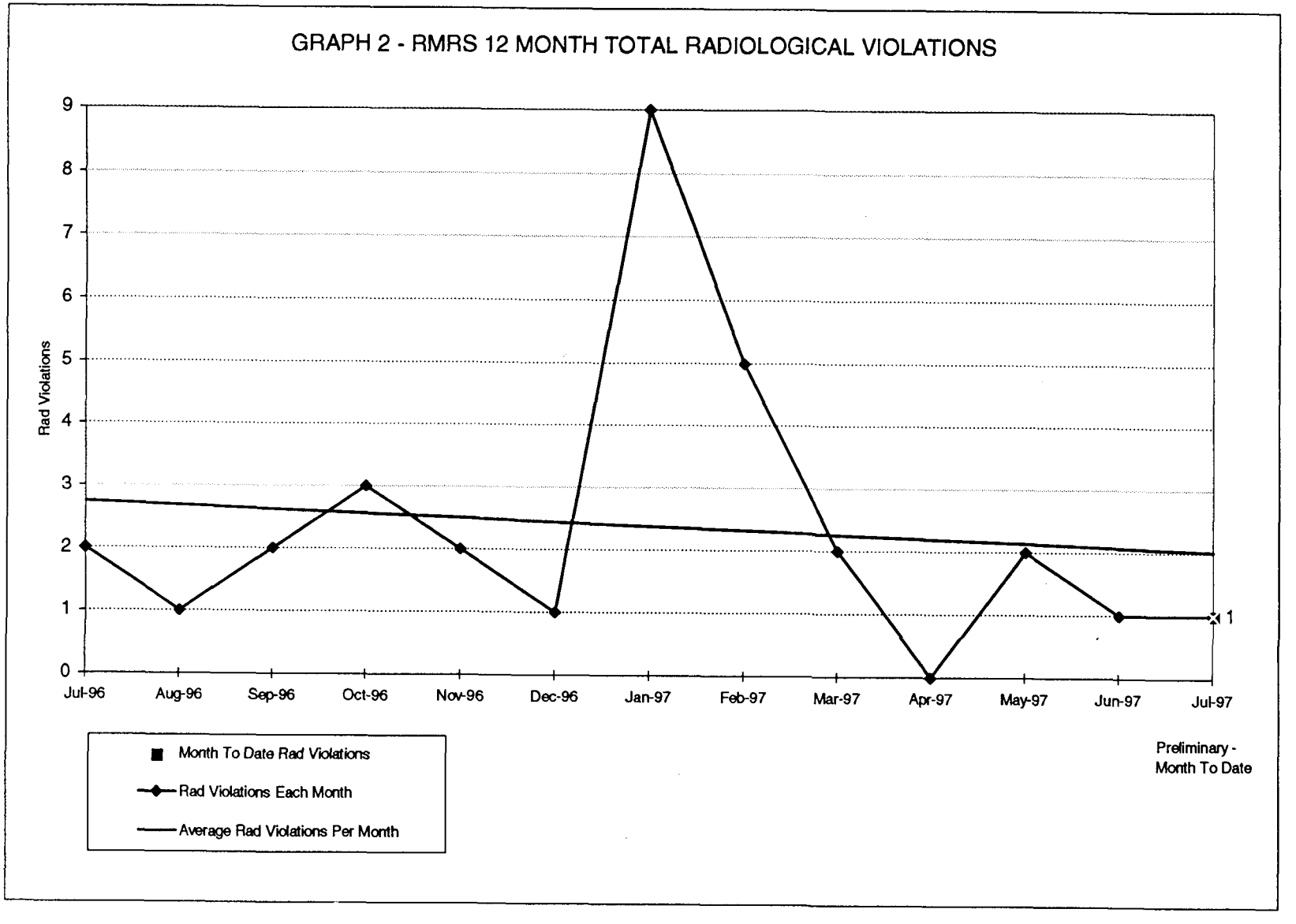
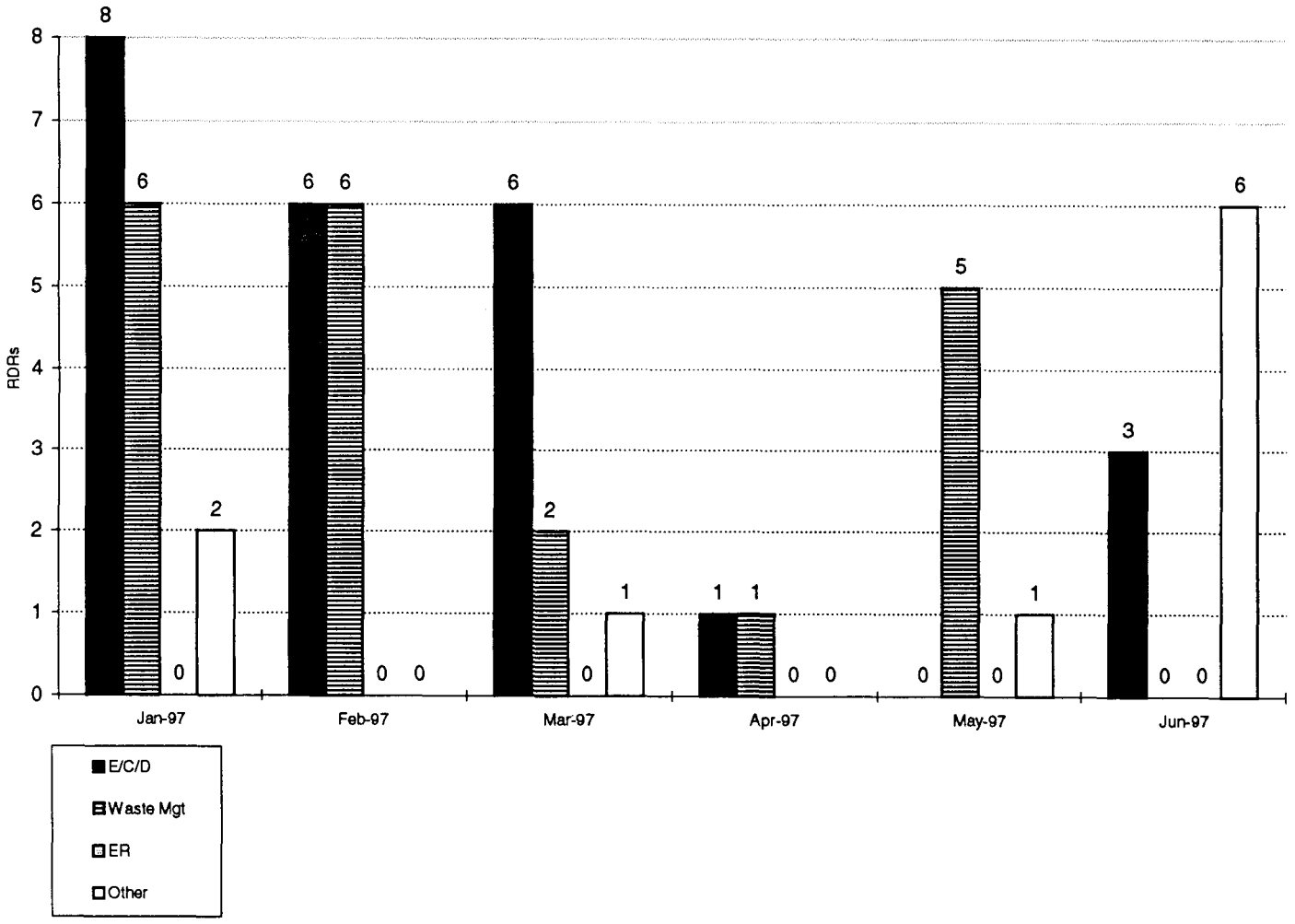
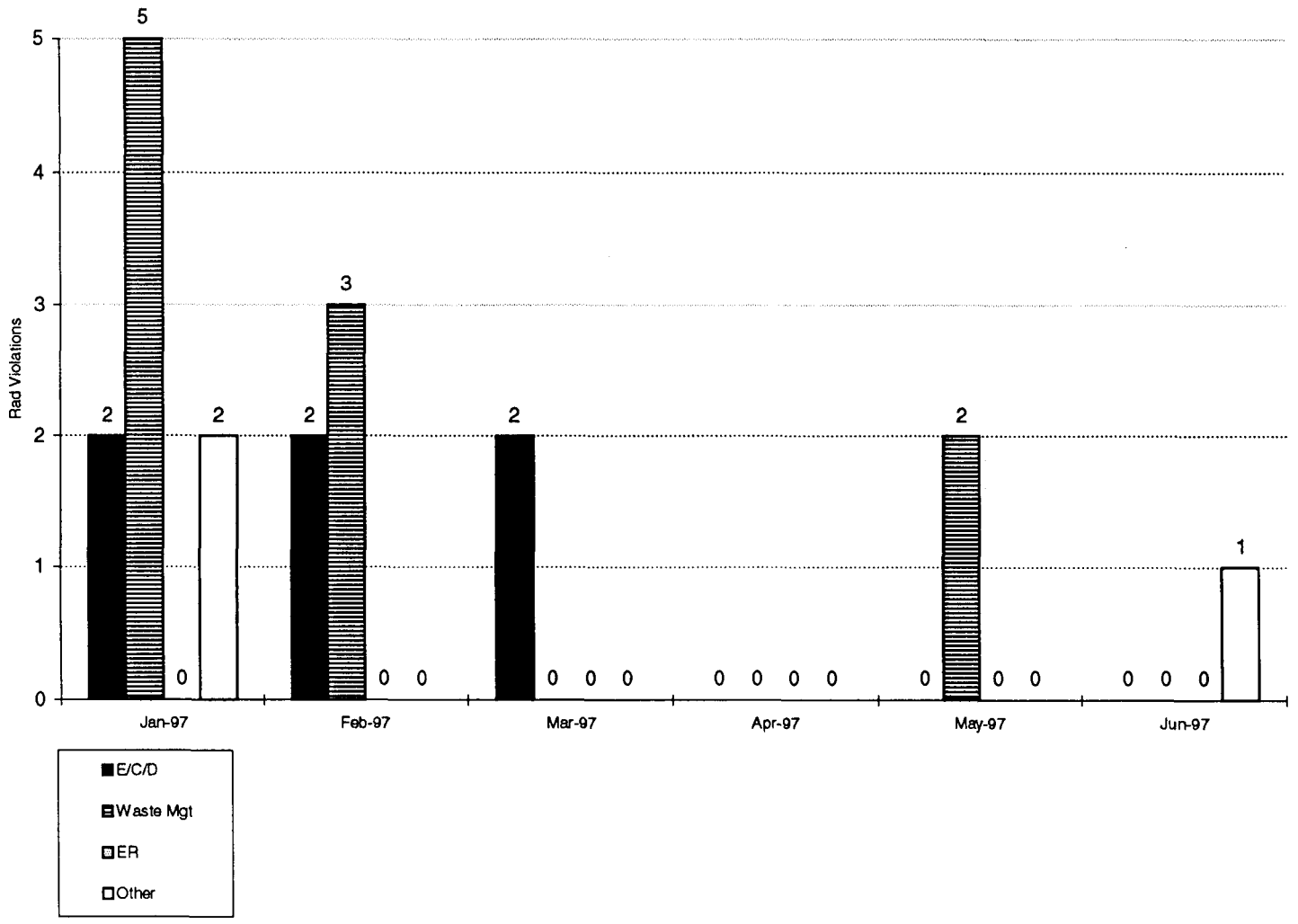

GRAPH 1 - RMRS 12 MONTH TOTAL RADIOLOGICAL DEFICIENCY REPORTS
RDRs
16
14
12
10
8
6
4
2
0
Jul-96
Aug-96
Sep-96
Oct-96
Nov-96
Dec-96
Jan-97
Feb-97
Mar-97
Apr-97
May-97
Jun-97
Jul-97
Preliminary - Month To Date
4
Month To Date RDRs
RDRs Each Month
Average RDRs Per Month


GRAPH 2 - RMRS 12 MONTH TOTAL RADIOLOGICAL VIOLATIONS
Rad Violations
0
1
2
3
4
5
6
7
8
9
Jul-96
Aug-96
Sep-96
Oct-96
Nov-96
Dec-96
Jan-97
Feb-97
Mar-97
Apr-97
May-97
Jun-97
Jul-97
1
Month To Date Rad Violations
Rad Violations Each Month
Average Rad Violations Per Month
Preliminary -
Month To Date

GRAPH 3 - RMRS 1997 RADIOLOGICAL DEFICIENCY REPORT DISTRIBUTION



GRAPH 4 - RMRS 1997 RADIOLOGICAL VIOLATION DISTRIBUTION



ATTACHMENT 1 - RMRS RADIOLOGICAL DEFICIENCY REPORT SUMMARY FOR JUNE 1997

RDR Number	Date of Event	Building	Responsible Manager	Description	Primary Event Code	Apparent Cause	Corrective Actions	Personnel Contamination	Uptake	Price Anderson	RDR Open/Closed
97-255*	6/4/97	886	J. Bahl	While taking down rashing ring removal hoses previously cut and taped, sealed piping was found to have leaked on floor and on plastic flooring, 200,000 dpm removable (RWP 97-886-5028). Suspension guide limits exceeded.	B5	Equipment	Containment removed, pipes deconned and recontained.	No	No	No	Closed
97-259*	6/4/97	444	None indicated	Survey of NDT film packages in NDT vault of CA for pre-release to PU&D recycle. Survey was performed and personnel surveyed out with out of calibration instrument (Electra). Instrument had been performance tested. Cal due date 5/25/97.	C7	*Personnel*	Review of survey found cal due on Electra/RCT questioned. Investigation of surveys performed with this instrument. Instrument sent for calibration. Notifications made.	No	No	No	Open
97-268	6/10/97	707	M.E. Brown	Positive CAM, noticed time for alarm set point was set at 174 seconds and is supposed to be set a 60 sec. Air sample in the room showed < 50 DAC.	C4	*Equipment*	Cam to be replaced and leave the room posted.	No	No	No	Open*
97-280*	6/17/97	886	G. Fischer	During SSC removal, RCT found 400,000 dpm/100cm2 removable alpha under tank 451 and behind SSC; exceeding RWP SGLs of 100,000 dpm/100cm2. It appears tank leaked after tank isolation was completed and while ring removal was in process.	B11	*Equipment*	Made notifications.	No	No	No	Open*
97-282*	6/18/97	881	None indicated	Individual performing asbestos analysis under hood, placing head into the hood to be able to see under microscope. Also, personnel are not following requirements of RWP and self-monitoring per HSP 18.09. Monitoring does not take place until end of day.	B1	*Personnel*	Survey of hood taken with no detectable readings, work stopped, RWP and TLD pulled.	No	No	No	Open
97-299*	6/18/97	886	G. Fischer	PAPRs to go to laundry were stored in an open bag in RMA. Surveyed by originator and found 1 respirator with 27 dpm and 1 with 66 dpm.	C6	*Procedure*	Bagged contaminate respirators, disposed of bag, surveyed area.	No	No	No	Open*

Notes:
1. Italics indicates extrapolated information; not indicated in SSOC RDR database.
2. RDR numbers followed by asterisks indicate RDRs up for resolution.
3. "Open*" indicates closure requested.
4. Shading indicates Rad Violation.

ATTACHMENT 1 - RMRS RADIOLOGICAL DEFICIENCY REPORT SUMMARY FOR JUNE 1997

RDR Number	Date of Event	Building	Responsible Manager	Description	Primary Event Code	Apparent Cause	Corrective Actions	Personnel Contamination	Uptake	Price Anderson	RDR Open/Closed
97-300	6/12/97	444	None indicated	RCTs concerned RCT support necessary for cleanout of lockers due to history of building. Many lockers not opened since early 1980's. Evolution was stopped and evaluated. Shoes from one locker found with embedded contamination on the soles.	A4	*Other: pre-existing condition*	Lockers, floor in the immediate area and personnel were surveyed for contamination, none found.	No	No	No	Open
97-301*	6/24/97	884	None indicated	One full-face respirator and nine half-masks with cartridges still attached were found in a cardboard box outside of building 884. No identifying labels were found on the box.	C7	*Other: pre-existing condition*	Respirators were immediately surveyed, no contamination found. Transported to Bldg. 886 for disposal.	No	No	No	Open
97-304	6/25/97	707	T. Bourgeois	After completion of bagouts, 14,000 dpm/100cm2 found on left shoulder and under arm area of individual's anti-Cs . Source of contamination was the glovebox glove. Additional surveys of the area indicated no additional spread of contamination.	B11	*Equipment*	Glove was changed out.	No	No	No	Open

Notes:
1. Italics indicates extrapolated information; not indicated in SSOC RDR database.
2. RDR numbers followed by asterisks indicate RDRs up for resolution.
3. "Open"* indicates closure requested.
4. Shading indicates Rad Violation.

ATTACHMENT 2 - RMRS RDRs FOR RESOLUTION

January 1997

97-010 2/12 Not an RMRS RDR in database.
6/17 Now an RMRS RDR in database, RMRS not informed.

This RDR is also categorized as a 10CFR835 non-compliance. RMRS needs to be informed of such modifications.

97-027 2/12 Not an RMRS RDR in database.
6/17 Now an RMRS RDR in database, RMRS not informed.

97-030 2/12 10CFR835 classification was "No".
6/17 10CFR835 classification was "Yes". RMRS not informed of change.

97-033 2/12 Not an RMRS RDR in database.
6/17 Now an RMRS RDR in database, RMRS not informed.

This RDR is also categorized as a 10CFR835 non-compliance. RMRS needs to be informed of such modifications.

97-044 2/12 10CFR835 classification was "No".
6/17 10CFR835 classification was "Yes". RMRS not informed of change.

February 1997

97-076 2/28 10CFR835 classification was "No".
6/17 10CFR835 classification was "Yes". RMRS not informed of change.

97-092 2/28 10CFR835 classification was "No".
6/17 10CFR835 classification was "Yes". RMRS not informed of change.

97-099 2/28 10CFR835 classification was "No".
6/17 10CFR835 classification was "Yes". RMRS not informed of change.

97-106 2/28 10CFR835 classification was "No".
6/17 10CFR835 classification was "Yes". RMRS not informed of change.

March 1997

97-126 4/3 RDR was assigned to RMRS.
6/17 RDR reassigned to SSOC at the request of RMRS.

97-135 4/3 RDR was assigned to RMRS.
6/17 RDR reassigned to Dyncorp at the request of RMRS.

97-138 4/3 Not an RMRS RDR in database.
6/17 Now an RMRS RDR in database, RMRS not informed.

97-142 4/3 Not an RMRS RDR in database.
6/17 Now an RMRS RDR in database, RMRS not informed.

97-149 4/3 RDR was assigned to RMRS.
6/17 RDR reassigned to Dyncorp at the request of RMRS.

ATTACHMENT 2 - RMRS RDRs FOR RESOLUTION

March 1997 (cont'd)

97-155 4/3 Not an RMRS RDR in database.
6/18 Now an RMRS RDR in database, RMRS not informed.

97-159 4/3 Not an RMRS RDR in database.
6/18 Now an RMRS RDR in database, RMRS not informed.

April 1997

97-177 5/19 Not an RMRS RDR in database.
5/20 Now an RMRS RDR in database, RMRS not informed.

This RDR is also categorized as a 10CFR835 non-compliance. RMRS needs to be informed of such modifications.

May 1997

No discrepancies noted.

June 1997

97-255 6/24 RMRS has requested reassignment to SSOC.

97-259 6/24 RMRS has requested reassignment to SSOC.

97-280 6/24 RMRS has requested reassignment to SSOC.

97-299 6/24 RMRS has requested reassignment to SSOC.

97-301 6/24 RMRS has requested reassignment to SSOC.

ATTACHMENT 3 - RMRS RADIOLOGICAL DEFICIENCY REPORT EVALUATION FOR THIRD QUARTER FISCAL YEAR 1997

I. Executive Summary

This evaluation, of third quarter RMRS Radiological Deficiency Reports (RDRs), yielded two significant findings presented in the following paragraphs. Other non-programmatic deficiencies were revealed and are described in further detail in the applicable sections of this evaluation. Recommended corrective actions and lessons learned are presented where applicable. Graphical representations of the RDR causes per quarter are provided as Graphs 1 through 6.

RDRs caused by personnel error continue to be a programmatic deficiency for RMRS radiological workers. Four RDRs were issued against RMRS during this quarter that were evaluated as having personnel error as the primary contributing cause. The common aspects with all RDRs caused by personnel error have been identified as inattention to detail, erroneous conclusions drawn from informal communication between workers, and personnel not understanding and following radiological requirements associated with their work areas. The most notable occurrences resulted from individuals not meeting Radiological Work Permit (RWP) and dosimetry requirements prior to entering radiological areas. RMRS is evaluating the processes necessary to enforce a progressive disciplinary program as detailed in the RFETS Standards of Conduct booklet. The intent behind such a program is to deter personnel from making preventable errors, reduce recurrence and hold individuals accountable for their standards of conduct. In addition, RMRS has noted a significant lack of control and accountability relative to our first line technical leads. Therefore, by the end of July, new first line managers will be appointed for RMRS that have the accountability, authority, and training to establish a new standard relative to RMRS industrial and nuclear safety. Monthly tracking and trending of RDRs cause by personnel error will continue and will be used to determine the effectiveness of these corrective actions.

The second finding identified through the course of this evaluation was the inappropriate storage of respirators. Although only two instances of improper respirator storage resulted in RDRs this quarter, this problem is a recurring deficiency. Respirators are not to be stored in open plastic bags or cardboard boxes outside of the designated storage locations. A FLASH is to be issued and used during toolbox safety briefs to communicate this deficiency. Follow up tracking of radiological deficiencies will be performed to determine the effectiveness of these corrective actions.

II. Description of the Radiological Deficiency Report Cause Analysis

The need for a relatively simple means to categorize primary causes of RDRs was identified during the performance of Radiological Assessment *RMRS-1997-RA002* in April of this year. As a result, the following cause categorization flowcharts were developed to aid in the categorization of RDRs. Two flowcharts were developed. The

first flowchart (Figure 1), titled "Personnel/System Interaction", is used for RDRs in which human interaction was involved to varying degree and was considered a leading contributor to the RDR. As the flowchart branches, the cause categories become more specific. Typically, this flowchart is used for RDRs in which the evaluation indicated that if different actions had been taken by personnel, the circumstances leading up to the RDR could have been mitigated. The second flowchart (Figure 2), titled "Equipment", is used for RDRs for which the evaluation indicated the circumstances leading to the RDR were primarily equipment related, and in most circumstances, beyond the control of personnel. Again, the flowchart branches into more specific cause categories. Typically, this flowchart is used for equipment degradation and failures.

Figure 1 - RMRS Radiological Deficiency Personnel/System Interaction Cause Flowchart

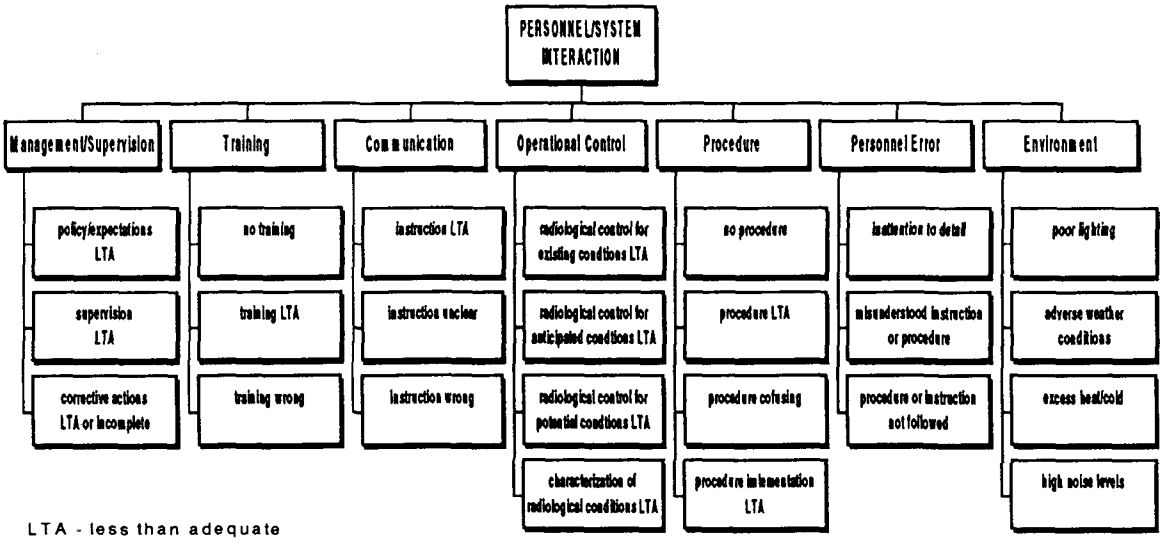
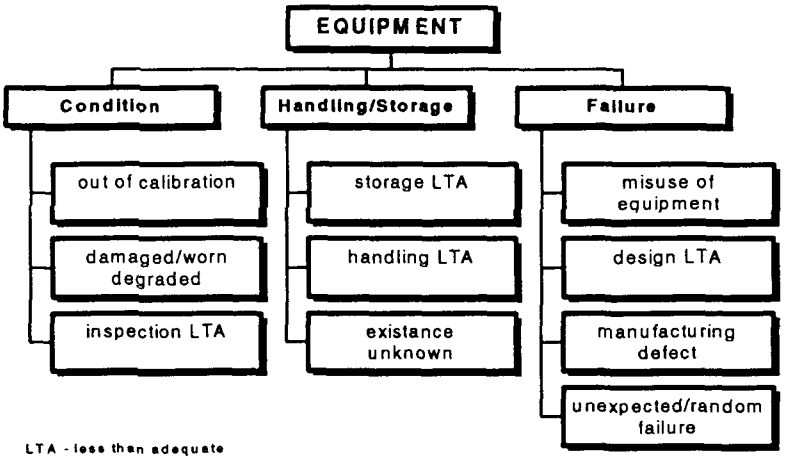


Figure 2 - RMRS Radiological Deficiency Equipment Cause Categorization Flowchart



A certain degree of subjectivity is involved when categorizing the RDRs by primary causes. In some circumstances, both cause category flowcharts may apply. In these situations, the "best fit" for the known circumstances of the RDRs is used. The purpose of this particular cause analysis is to provide a programmatic perspective of common and/or recurring causes. It is not the intent to critique each individual occurrence resulting in a RDR.

Once all RDRs have been categorized, each group of RDRs are reviewed for similarities. Based on these findings, common radiological performance deficiencies are identified. Brief descriptions of similar causes are provided in each section of this cause analysis. From the identified common causes, recommended corrective actions and lessons learned are derived and presented were applicable. Ensuing monthly and quarterly cause analyses are used in conjunction with other elements of the RMRS RDR Tracking and Trending Program to determine the effectiveness of corrective actions.

III. Personnel/System Interaction Cause Analysis Narrative

A. Management/Supervision

No RDRs for the third quarter of fiscal year 1997 had Management/Supervision identified as the primary cause.

B. Training

One RDR was categorized as having less than adequate training as the primary cause. A site wide RDR was issued to all contractors by SSOC. The RDR was issued because numerous employees across the site had expired Radiological Worker II training, yet still had dosimetry issued to them. The driving concern was personnel may have entered radiological areas with expired training.

No significant problematic finding is evident based on this sole occurrence. RMRS supervisors and training coordinators were aware of the status of training for personnel they are responsible for. No RMRS personnel entered radiological areas with expired training even though they still had dosimetry service.

C. Communication

One RDR was categorized as having less than adequate instructions (communications) as the primary cause. A Radiological Control Technician (RCT) misunderstood a discussion between water sampling team members related to water sampling procedures. This misunderstanding led the RCT to believe the sampling team was disposing of radioactive liquids in a sanitary drain. That was not the case.

This RDR does not indicate a programmatic deficiency. Personnel should use precise and clear communications to avoid misunderstandings.

B. Operational Control

Two RDRs were categorized as having less than adequate operational control as the primary contributing cause of the occurrences. One RDR resulted in less than adequate radiological controls for existing conditions, specifically the discovery of an uncontrolled radiation area outside of a building. The source of radiation was from a controlled radiation area inside the building. The radiation penetrated the exterior walls of the building, resulting in radiation levels outside the building, necessitating radiation area posting and control. The second RDR resulted from radiological controls being less than adequate for potential radiological conditions during the cleaning out of lockers in a men's locker room. Many of the lockers being cleaned out had not been accessed since the early 1980's. The concern was the potential for discovery of contaminated items during the cleaning.

These two RDRs do not exhibit a significant problematic finding. However, the lesson to be learned from these two RDRs is that any seemingly routine task may not be so routine. Full knowledge and understanding of an individuals work environment is essential.

C. Procedure

One RDR was categorized as having less than adequate procedural control as the primary contributing cause. An individual received a stab wound in the thigh during glovebox size reduction activities. An Enhance Work Practice (EWP) team was formed to evaluate the practices and procedures employed during size reduction activities. Through the use of mock ups and experimentation with alternative work practices, it was determined that use of a retractable blade knife and modified taping techniques would enhance worker safety. These work practices and tool modifications have been implemented into size reduction activities.

This RDR does not represent a problematic concern. This RDR is a good example of successful work practice improvement. Personnel recognized the seriousness of this isolated occurrence and took appropriate and timely action to improve the process.

D. Personnel Error

A total of four RDRs, two classified as Radiological Violations, were categorized as having inattention to detail, misunderstanding instructions or procedures, or procedure or instruction not followed as the primary contributing cause. The following brief descriptions are provided for these five occurrences:

- Individuals removed computer equipment from a building prior to obtaining Radiological Operations evaluation of survey requirements,
- Individual entered a radioactive material area without required dosimetry,
- Two individuals entered a contamination area without the required RCT support,

- Individual not following Radiological Work Permit (RWP) and self monitoring requirements.

These RDRs indicate a potential problematic deficiency. The common aspects linking these RDRs are; 1) personnel not fully understanding applicable radiological requirements, 2) inattention to detail. These RDRs could have been avoided if personnel would have thought about what they were doing or fully understood the applicable radiological requirements associated with their respective activities. If requirements were not fully understood, personnel should stop work and ask supervision and Radiological Safety personnel for clarification.

E. Environment

No RDRs for the third quarter of fiscal year 1997 had Environment identified as the primary cause.

IV. Equipment Cause Analysis Narrative

A. Condition

Three RDRs were categorized as having less than adequate material conditions as the primary contributing cause. One RDR resulted from the use of an out of calibration radiological monitoring instrument. The other two RDRs resulted from unanticipated material failures; 1) a contained contaminated pipe and 2) an isolated tank leaked contaminated fluids into the work area.

These occurrences do not indicate a problematic deficiency. The lesson to be learned is workers should perform frequent in process inspections of radiological containments and component isolation boundaries. Equipment and material conditions have potential to change or degrade over time, thus not providing the desired level of isolation from contaminated materials.

B. Handling and Storage

Two RDRs were categorized as having less than adequate storage as the primary contributing cause. Both of these RDRs resulted from respirators being inappropriately stored in open bags and boxes.

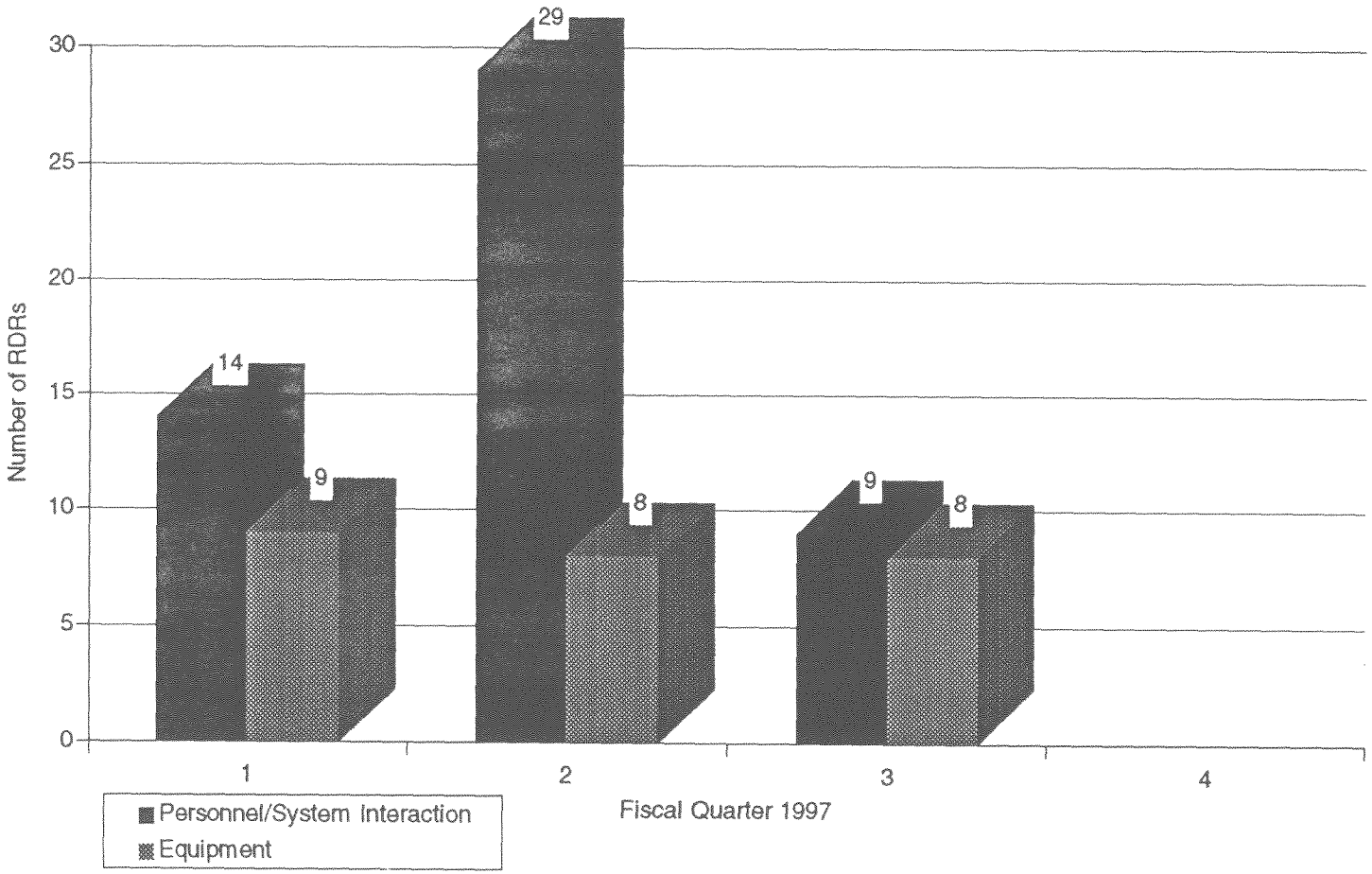
These RDRs indicate a potential problematic deficiency relevant to respirator control and storage. The lack of control of respirators has is a pre-existing problem site wide. Individuals must ensure they completely understand the specific protocols for storing respirators in their work locations. All respirators must be stored in approved bags and containers in designated locations.

C. Failure

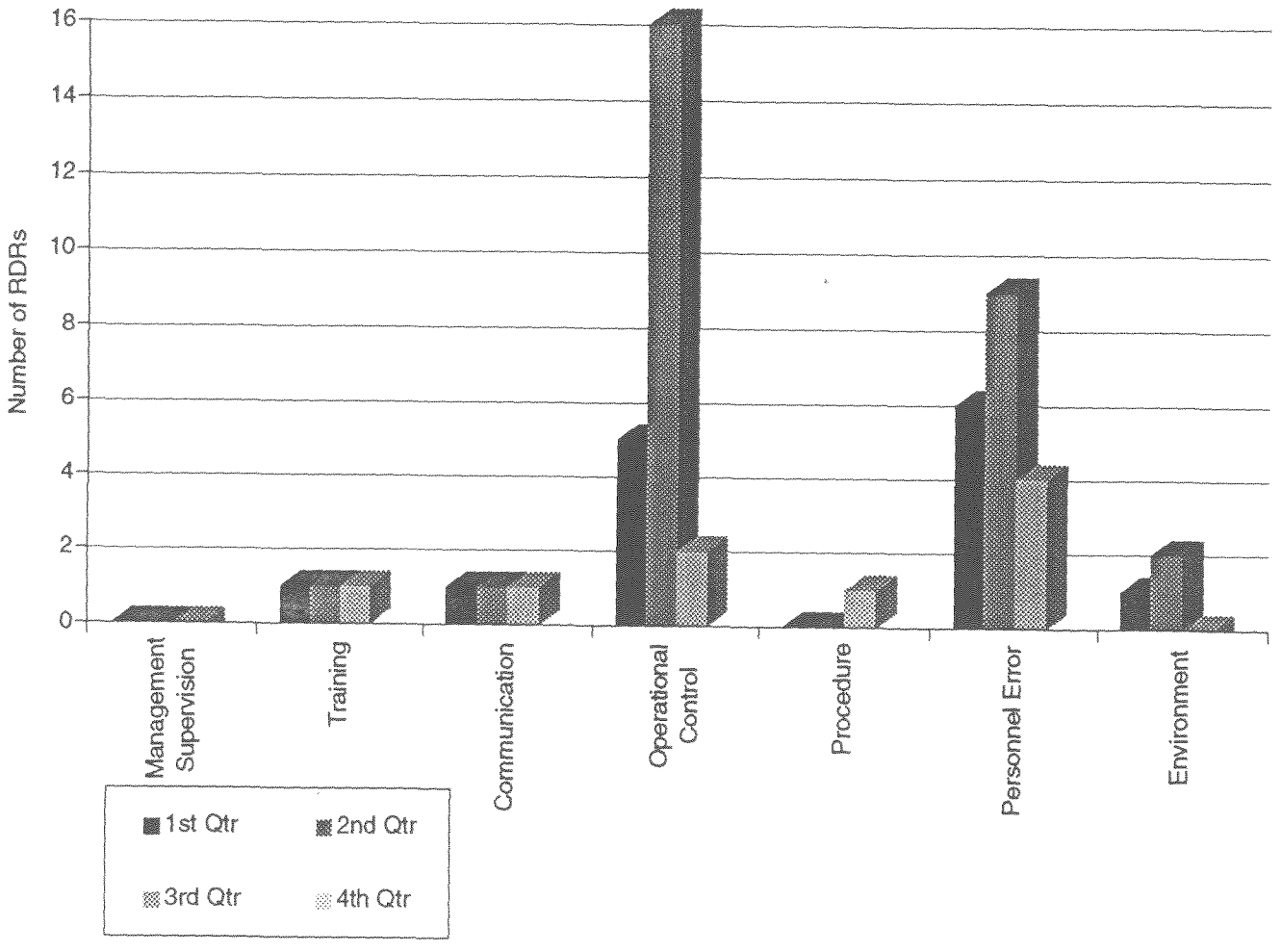
Three RDRs were categorized as having either less than adequate design or unexpected random failure as the primary contributing causes. One RDR categorized as inadequate design resulted from steam lines contracting causing a water leak during a steam outage. Two RDRs categorized as random unexpected failures resulted; 1) from a glovebox glove failure and 2) a continuous air monitor failure.

Evaluation of these RDRs do not indicate problematic deficiencies. Lessons to be learned is personnel should anticipate equipment response to abnormal conditions. In this situation, the steam outage resulted in water leaking from a steam pipe. Although not totally predicable, such system response could be anticipated in the future.

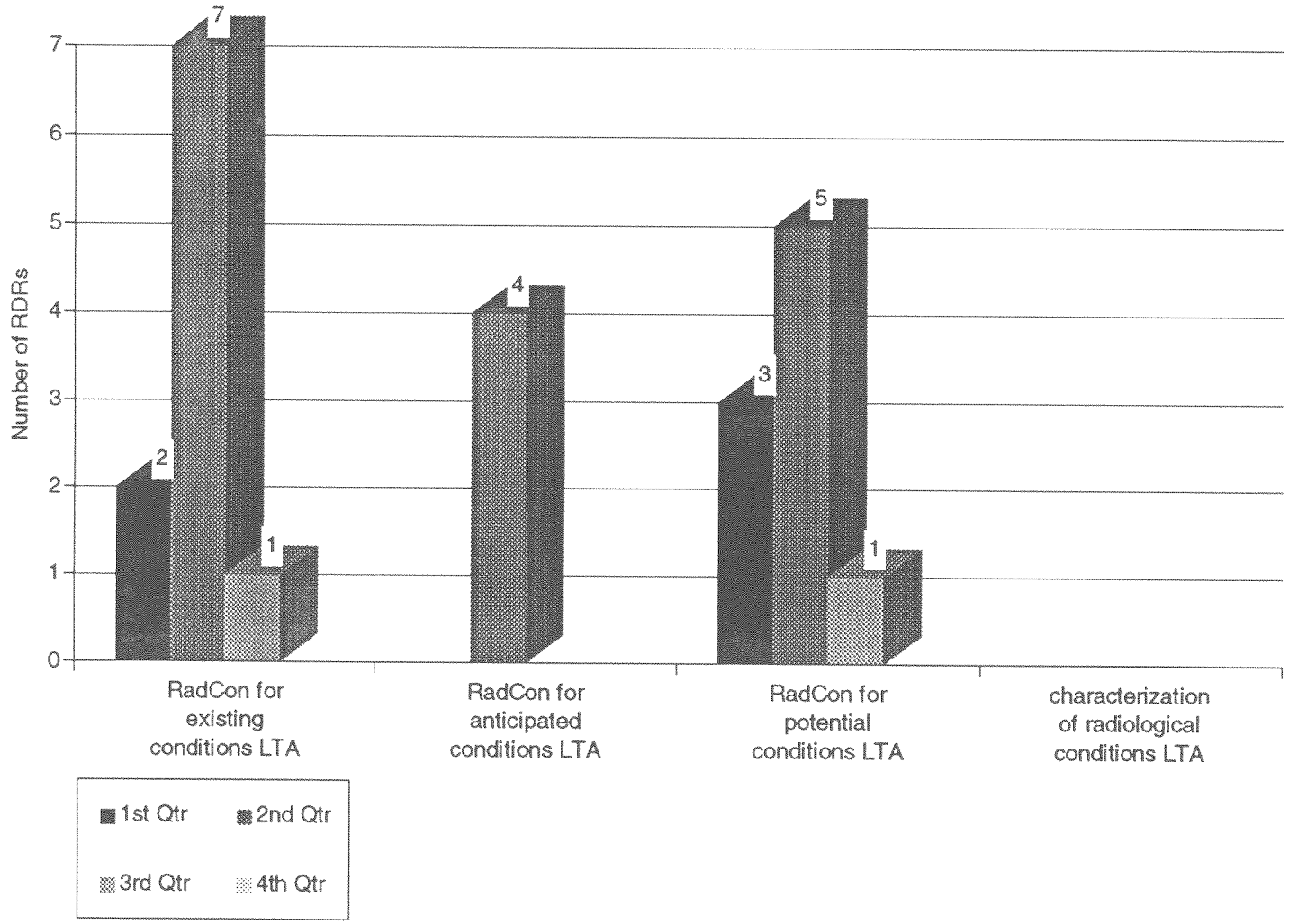
GRAPH 1 - PERSONNEL/SYSTEM INTERACTION AND EQUIPMENT RDRs BY FISCAL QUARTER



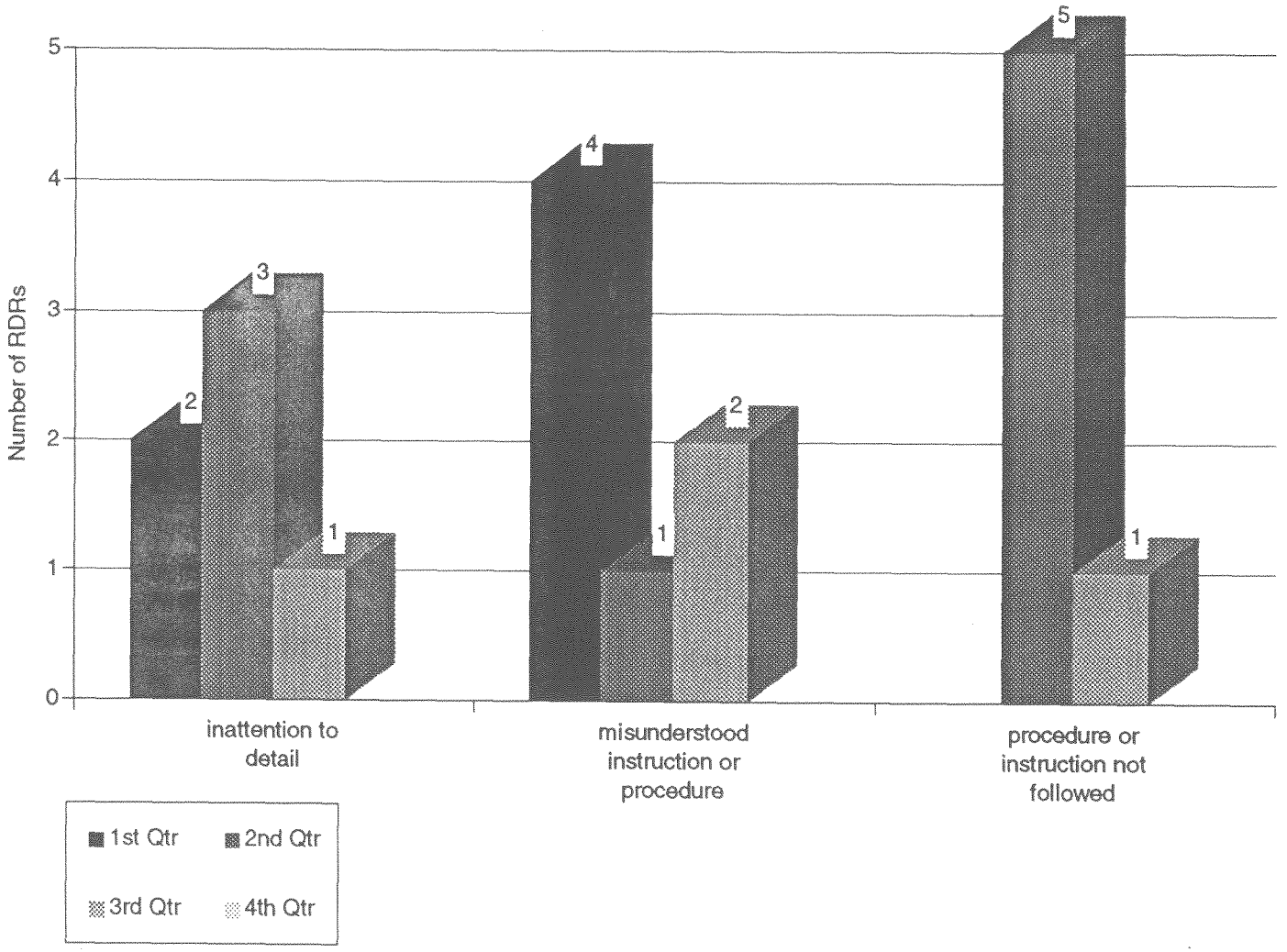
GRAPH 2 - PERSONNEL/SYSTEM INTERACTION RDRs BY CAUSE CATEGORY



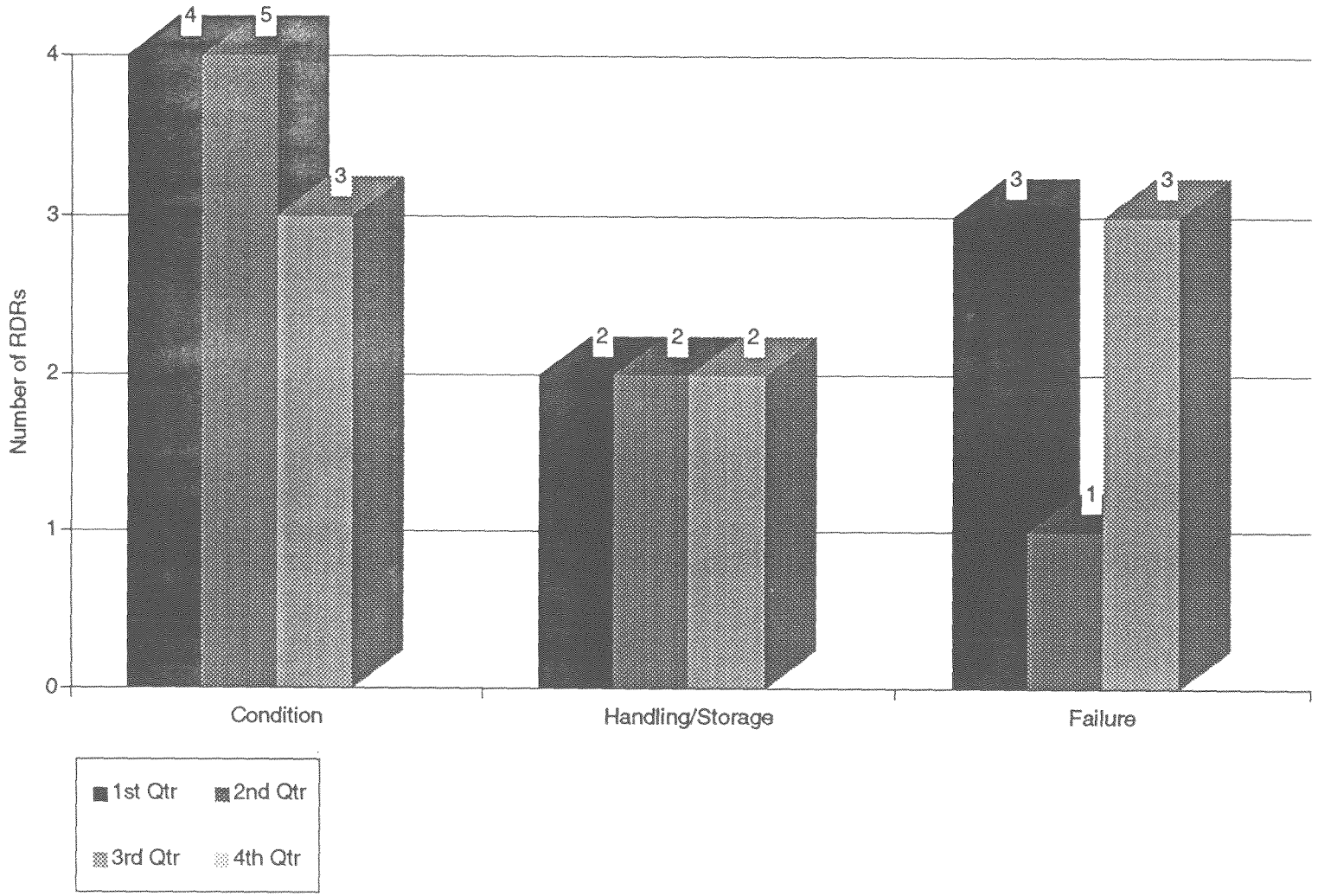
GRAPH 3 - OPERATIONAL CONTROL RDRs BY CAUSE SUB-CATEGORY



GRAPH 4 - PERSONNEL ERROR RDRs BY CAUSE SUB-CATEGORY



GRAPH 5 - EQUIPMENT RDRs BY CAUSE CATEGORY



GRAPH 6 - RDRs AND RADIOLOGICAL VIOLATIONS BY FISCAL QUARTER